

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : OLYMPUS OPTICAL CO LTD

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(72)Inventor : TERAMOTO SATOSHI

## 1) MANUFACTURE OF COMPOSITE OPTICAL ELEMENT

### 1)Abstract:

**PURPOSE:** To allow an entire side face of a resin layer arrive at an outside of an optical effective diameter without increasing an outer diameter of a base material forming a desired resin layer in molds for an optical element when a difference  $\delta$  between an effective diameter of a surface of the layer and a diameter of a base material of the element to an unevenness  $\Delta x$  of a maximum diameter of the layer is large and setting a molding surface interval of a part out of an effective diameter of the molds and a molding surface of the same base material to a formula or less.

**CONSTITUTION:** When an interval between a base material 2 and a mold 1 is (t), the mold 1 is pressed to press an intermediate part 3a of a resin layer 3 at the time of molding to a central axis side. When a maximum diameter of the layer 3 is Dmax, a minimum diameter is Dmin and its difference is  $\Delta D$ , at the time of 0.5t of the interval, its maximum diameter is D'max, its minimum diameter is D'min, and its difference is  $\Delta D'$ ,  $\Delta D=2\Delta D'$  is satisfied. When the (t) is set to a half,  $\Delta D/2$  becomes about a half, and relationship of (t)=  $32.4 + 76\Delta D$  is satisfied. Accordingly, when a difference of the effective diameters is  $\delta$ , an interval of  $\delta$  of the effective diameters may be set to  $(32.4 + 3.76\delta)$  or less. In fact, since unevenness of  $\Delta x$  occurs in the maximum diameter of the layer, it is necessary to set the interval to  $(32.4 + 3.76(\mu - \Delta x))\mu\text{m}$  or less.

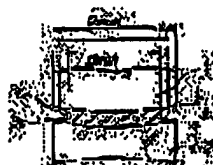


Fig. 1 and Fig. 2 are schematic cross-sectional diagrams of the mold assembly.

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(71) 出願人 000000978

オリンパス光学工業株式会社  
東京都渋谷区笹ヶ谷2丁目43番2号

(72) 発明者 寺本 誠

東京都渋谷区笹ヶ谷2丁目43番2号 オリ  
ンパス光学工業株式会社内

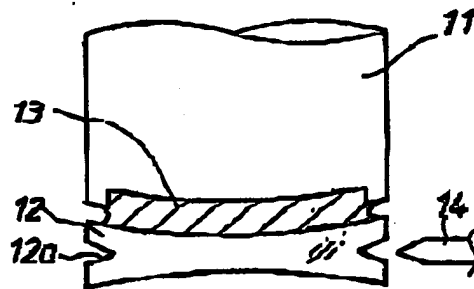
(74) 代理人 弁理士 奈良 武

(4) 【発明の名称】 複合型光学素子の製造方法

7) 【要約】

【目的】 樹脂層側面の最大径と最小径との差を小さくする。これにより、樹脂層の有効径と基材径との差を小さくし、製品の外観をより一層のコンパクト化を可能とする。

【構成】 金型11は上下動自在に保持され、金型11の光学面の有効径の外周部分は基材との間隔が有効径内部分よりも狭くなる様に突出した形状に形成されてい



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